Listing of Claims:

Claim 1 (currently amended): A method of reprogramming a field device in a process control network having a plurality of devices which are communicatively linked on a bus and which use a standard communication protocol to perform process control functions, the method comprising the steps of:

downloading process control program instructions from a host device to one of the field devices having a first memory with stored process control program instructions and a second memory using the standard communication protocol during operation ~~of the~~ of the process control network while the one of the field devices is enabled to execute the stored program instructions that will be replaced by the downloaded process control program instructions to perform process control;

storing the downloaded process control program instructions in the ~~field device~~ second memory while the one of the field devices is enabled to execute the stored process control program instructions that will be replaced by the downloaded process control program instructions to perform process control; and

causing the field device to discontinue executing the stored process control program instructions to perform process control and to execute the downloaded process control program instructions to perform process control.

Claim 2 (previously amended): A method of reprogramming a field device in a process control network according to claim 1, wherein the downloading step comprises the step of transmitting the process control program instructions from the host device to the one of the field devices using unscheduled queued communications.

Claim 3 (previously amended): A method of reprogramming a field device in a process control network according to claim 2, wherein the downloading step comprises the step of transmitting the process control program instructions from the host device to the one of the field devices using a plurality of unscheduled queued communications.

Claim 4 (canceled)

Claim 4 (previously amended): A method of reprogramming a field device in a process control network according to claim 1, wherein the causing step comprises the step of copying the downloaded process control program instructions from the second memory to the first memory.

Claim 5 (previously amended): A method of reprogramming a field device in a process control network according to claim 1, wherein the causing step comprises the step of redirecting the one of the field devices from executing the stored process control program instructions in the first memory to executing the downloaded process control program instructions in the second memory.

Claim 6 (previously amended): A method of reprogramming a field device in a process control network according to claim 1, wherein the causing step comprises the steps of:

ceasing the execution of the stored process control program instructions in the first memory;

copying the downloaded process control program instructions from the second memory to the first memory;

initiating the execution of the downloaded process control program instructions in the first memory.

Claim 7 (previously amended): A method of reprogramming a field device in a process control network according to claim 1, wherein the causing step comprises the steps of:

ceasing the execution of the stored process control program instructions in the first memory;

redirecting the field device to execute the downloaded process control program instructions in the second memory;

initiating the execution of the downloaded process control program instructions in the second memory.

Claim 8 (original): A method of reprogramming a field device in a process control network according to claim 1, wherein the standard communications protocol is the Fieldbus protocol.

Claim 9 (original): A method of reprogramming a field device in a process control network according to claim 1, wherein the standard communications protocol is the HART protocol.

Claim 10 (currnetly amended): A system for reprogramming a field device in a process control network having a plurality of field devices communicatively linked over a bus, wherein each of the field devices is capable of communicating on the bus using a standard communications protocol during operation of the process control network, the system comprising:

a first device that generates downloadable process control program instructions and that transmits the downloadable process control program instructions over the bus using the standard communication protocol; and

a second device capable of receiving the downloadable process control program instructions transmitted over the bus, the second device comprising:

a processor adapted to execute a set of process control program instructions stored in the second device;

a first memory adapted to store a first set of process control program instructions that may be executed by the processor; and

a second memory adapted to store the downloadable process control program instructions transmitted over the bus;

wherein the first device transmits the downloadable process control program instructions to the second device and the second device receives the downloadable process control program instructions and stores the downloadable process control program

instructions in the second memory during operation of the process control network while the second device is enabled to execute the first set of process control program instructions that will be replaced by the downloadable process control program instructions to perform process control; and

wherein the processor discontinues executing the first set of process control program instructions to perform process control and begins executing the downloadable process control program instructions to perform process control after the downloadable process control program instructions are stored in the second memory.

Claim 11 (previously amended): A system for reprogramming a field device according to claim 10, wherein the standard communication protocol includes scheduled and unscheduled communications and the first device transmits the downloadable process control program instructions to the second device using unscheduled communications.

Claim 12 (previously amended): A system for reprogramming a field device according to claim 10, wherein the standard communication protocol includes concurrent analog and digital communications and the first device transmits the downloadable process control program instructions to the second device using digital communications.

Claim 13 (previously amended): A system for reprogramming a field device according to claim 10, wherein the first memory is a non volatile memory and the second device stores the downloadable process control program instructions in the second memory while the processor is enabled to execute process control program instructions stored in the first memory to perform process control, and wherein the second device includes a transfer unit that disables the processor from executing process control program instructions stored in the first memory after the downloadable process control program instructions are stored in the second memory, that copies the downloadable process control program instructions from the second memory to the non volatile memory of the first memory while the processor is disabled, and that reenables the processor to execute the downloadable process control program instructions stored in the first memory after the downloadable process control program instructions are copied.

Claim 14 (previously amended): A system for reprogramming a field devices according to claim 10, wherein the first memory is a non volatile memory adapted to store the downloadable process control program instructions, the second memory is a non volatile memory adapted to store process control program instructions that may be executed by the processor, the second device includes a transfer unit adapted to store information causing the processor to execute the process control program instructions stored in one of the first memory and the second memory, and wherein the transfer unit stores the downloadable process control program instructions in the other of the first memory and the second memory while the processor is enabled to execute process control program instructions stored in the one of the first memory and the second memory to perform process control, disables the processor from executing process control program instructions stored in the one of the first memory and the second memory after the downloadable process control program instructions are stored in the other of the first memory and the second memory, updates the stored information to cause the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory while the processor is disabled, and reenables the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory.

Claim 15 (previously amended): A system for reprogramming a field devices according to claim 10, wherein the second device further comprises a non volatile memory having a first portion containing the first memory, a second portion containing the second memory, the first memory and the second memory being adapted to store process control program instructions that may be executed by the processor and downloadable process control program instructions received in the input signal, and a transfer unit having a third memory adapted to store information causing the processor to execute the process control program instructions stored in one of the first memory and the second memory, and wherein the transfer unit stores the downloadable process control program instructions in the other of the first memory and the second memory while the processor is enabled to execute process control program instructions stored in the one of the first memory and the second memory to perform process control, disables the processor from executing process control program instructions stored in the one of the first memory and the second memory after the

downloadable process control program instructions are stored in the other of the first memory and the second memory, updates the stored information in the third memory to cause the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory while the processor is disabled, and reenables the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory after the third memory is updated.

Claim 16 (currently amended): A reprogrammable field device capable of being used in a process control network having a plurality of devices communicatively coupled to a bus, wherein each of the devices is capable of communicating on the bus using a standard communications protocol, and wherein a host device is capable of generating input signals including downloadable process control program instructions and transmitting the input signals to the reprogrammable field device over the bus during operation of the process control network while the reprogrammable field device is enabled to perform process control, the reprogrammable field device comprising:

a processor adapted to execute a set of process control program instructions stored in the reprogrammable field device;

a first memory adapted to store a first set of process control program instructions that may be executed by the processor; and

a second memory adapted to store the downloadable process control program instructions transmitted over the bus;

wherein the reprogrammable field device receives the downloadable process control program instructions and stores the downloadable process control program instructions in the second memory during operation of the process control network while the reprogrammable device is enabled to execute the first set of process control program instructions that will be replaced by the downloadable process control program instructions to perform process control; and

wherein the processor discontinues executing the first set of process control program instructions to perform process control and begins executing the downloadable process

control program instructions to perform process control after the downloadable process control program instructions are stored in the second memory.

Claim 18 (previously amended): A reprogrammable field device according to claim 17, wherein the standard communication protocol includes scheduled and unscheduled communications and the host device transmits the downloadable process control program instructions to the reprogrammable field device using unscheduled communications.

Claim 19 (previously amended): A reprogrammable field device according to claim 17, wherein the standard communication protocol includes concurrent analog and digital communications and the host device transmits the downloadable process control program instructions to the reprogrammable field device using digital communications.

Claim 20 (previously amended): A reprogrammable field device according to claim 17, wherein the first memory is a non volatile memory and the reprogrammable field device stores the downloadable process control program instructions in the second memory while the processor is enabled to execute process control program instructions stored in the first memory to perform process control, and wherein the reprogrammable field device further comprises a transfer unit that disables the processor from executing process control program instructions stored in the first memory after the downloadable process control program instructions are stored in the second memory, copies the downloadable process control program instructions from the second memory to the non volatile memory of the first memory while the processor is disabled, and reenables the processor to execute the downloadable process control program instructions stored in the first memory after the downloadable process control program instructions are copied.

Claim 21 (previously amended): A reprogrammable field device according to claim 17, wherein the first memory is a non volatile memory adapted to store the downloadable process control program instructions received in the input signals, the second memory is a non volatile memory adapted to store process control program instructions that may be

executed by the processor, and the reprogrammable field device further comprises a transfer unit having a third memory adapted to store information causing the processor to execute the process control program instructions stored in one of the first memory and the second memory, and wherein the transfer unit stores the downloadable process control program instructions in the other of the first memory and the second memory while the processor is enabled to execute process control program instructions stored in the one of the first memory and the second memory to perform process control, disables the processor from executing process control program instructions stored in the one of the first memory and the second memory after the downloadable process control program instructions are stored in the other of the first memory and the second memory, updates the stored information in the third memory to cause the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory while the processor is disabled, and reenables the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory after the third memory is updated.

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16 Claim ~~22~~ (previously amended): A reprogrammable field device according to claim ~~17~~, further comprising:

a non volatile memory having a first portion containing the first memory and a second portion containing the second memory, the first memory and the second memory being adapted to store process control program instructions that may be executed by the processor and downloadable process control program instructions received in the input signal; and

a transfer unit adapted to store information causing the processor to execute the process control program instructions stored in one of the first memory and the second memory,

wherein the transfer unit stores the downloadable process control program instructions in the other of the first memory and the second memory while the processor is enabled to execute process control program instructions stored in the one of the first memory and the second memory to perform process control, disables the processor from executing process control program instructions stored in the one of the first memory and the second memory after the downloadable process control program instructions are stored in the other of the first

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memory and the second memory, updates the stored information to cause the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory while the processor is disabled, and reenables the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory after the third memory is updated.

Claim 23 (previously amended): A method of reprogramming a field device in a process control network having a plurality of devices which are communicatively linked on a bus to perform process control functions, the method comprising the steps of:

downloading process control program instructions from a host device to one of the field devices wherein the host device divides the process control program instructions into a plurality of data packets that are downloaded to the one of the field devices over time while the one of the field devices is enabled to perform process control;

reassembling the downloaded data packets into the process control program instructions in the field device;

storing the downloaded process control program instructions in the field device; and

causing the field device to execute the downloaded process control program instructions.

Claim 24 (original): A method of reprogramming a field device in a process control network according to claim 23, wherein the downloading step comprises the step of transmitting the data packets from the host device to the one of the field devices using a plurality of unscheduled queued communications.

Claim 25 (previously amended): A method of reprogramming a field device in a process control network according to claim 23, wherein the one of the field devices has a first memory with stored process control program instructions and a second memory, wherein said storing step comprises the step of storing the downloaded process control program instructions in the second memory while the one of the field devices is capable of executing the stored process control program instructions to perform process control.

Claim 25 (previously amended): A method of reprogramming a field device in a process control network according to claim 24, wherein the causing step comprises the step of copying the downloaded process control program instructions from the second memory to the first memory.

Claim 26 (previously amended): A method of reprogramming a field device in a process control network according to claim 24, wherein the causing step comprises the step of redirecting the one of the field devices from executing the stored process control program instructions in the first memory to executing the downloaded process control program instructions in the second memory.

Claim 27 (previously amended): A method of reprogramming a field device in a process control network according to claim 24, wherein the causing step comprises the steps of:

ceasing the execution of the stored process control program instructions in the first memory;

copying the downloaded process control program instructions from the second memory to the first memory;

initiating the execution of the downloaded process control program instructions in the first memory.

Claim 28 (previously amended): A method of reprogramming a field device in a process control network according to claim 24, wherein the causing step comprises the steps of:

ceasing the execution of the stored process control program instructions in the first memory;

redirecting the field device to execute the downloaded process control program instructions in the second memory;

initiating the execution of the downloaded process control program instructions in the second memory.

Claim 30 (original): A method of reprogramming a field device in a process control network according to claim 23, wherein the plurality of devices communicate using a standard communication protocol.

Claim 31 (previously amended): A system for reprogramming a field device in a process control network having a plurality of field devices communicatively linked over a bus, wherein each of the field devices is capable of communicating on the bus during operation of the process control network, the system comprising:

a first device that divides downloadable process control program instructions into a plurality of data packets and that transmits the data packets over the bus; and

a second device capable of receiving the data packets transmitted over the bus and reassembling the data packets into the downloadable process control program instructions, the second device comprising:

a processor adapted to execute a set of process control program instructions stored in the second device;

a first memory adapted to store a first set of process control program instructions that may be executed by the processor; and

a second memory adapted to store the downloadable process control program instructions transmitted over the bus;

wherein the first device transmits the data packets to the second device and the second device receives the data packets, reassembles the data packets into the downloadable process control program instructions, and stores the process control program instructions in the second memory during operation of the process control network while the second device is enabled to perform process control.

Claim 32 (original): A system for reprogramming a field device according to claim 31, wherein the field devices communicate using scheduled and unscheduled

communications and the first device transmits the data packets to the second device using unscheduled communications.

Claim 32 (original): A system for reprogramming a field device according to claim 30, wherein the field devices communicate using concurrent analog and digital communications and the first device transmits the data packets to the second device using digital communications.

Claim 33 (previously amended): A system for reprogramming a field device according to claim 30, wherein the first memory is a non volatile memory and the second device stores the downloadable process control program instructions in the second memory while the processor is enabled to execute process control program instructions stored in the first memory to perform process control, and wherein the second device includes a transfer unit that disables the processor from executing process control program instructions stored in the first memory after the downloadable process control program instructions are stored in the second memory, that copies the downloadable process control program instructions from the second memory to the non volatile memory of the first memory while the processor is disabled, and that reenables the processor to execute the downloadable process control program instructions stored in the first memory after the downloadable process control program instructions are copied.

Claim 34 (previously amended): A system for reprogramming a field devices according to claim 30, wherein the first memory is a non volatile memory adapted to store the downloadable process control program instructions, the second memory is a non volatile memory adapted to store process control program instructions that may be executed by the processor, the second device includes a transfer unit adapted to store information causing the processor to execute the process control program instructions stored in one of the first memory and the second memory, and wherein the transfer unit stores the downloadable process control program instructions in the other of the first memory and the second memory while the processor is enabled to execute process control program instructions stored in the one of the first memory and the second memory to perform process control, disables the

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processor from executing process control program instructions stored in the one of the first memory and the second memory after the downloadable process control program instructions are stored in the other of the first memory and the second memory, updates the stored information to cause the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory while the processor is disabled, and reenables the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory.

Claim 35 (previously amended): A system for reprogramming a field devices according to claim 30, wherein the second device further comprises a non volatile memory having a first portion containing the first memory, a second portion containing the second memory, the first memory and the second memory being adapted to store process control program instructions that may be executed by the processor and downloadable process control program instructions received in the input signal, and a transfer unit having a third memory adapted to store information causing the processor to execute the process control program instructions stored in one of the first memory and the second memory, and wherein the transfer unit stores the downloadable process control program instructions in the other of the first memory and the second memory while the processor is enabled to execute process control program instructions stored in the one of the first memory and the second memory to perform process control, disables the processor from executing process control program instructions stored in the one of the first memory and the second memory after the downloadable process control program instructions are stored in the other of the first memory and the second memory, updates the stored information in the third memory to cause the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory while the processor is disabled, and reenables the processor to execute the downloadable process control program instructions stored in the other of the first memory and the second memory after the third memory is updated.

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